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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,719	07/10/2006	Abbas Razavi	F-874 (31223.00104)	8615
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FINA TECHNOLOGY INC PO BOX 674412 HOUSTON, TX 77267-4412			EXAMINER LEE, RIP A	
			ART UNIT 1796	PAPER NUMBER
			MAIL DATE 01/14/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/562,719	Applicant(s) RAZAVI, ABBAS	
	Examiner Rip A. Lee	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-37 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 18-37 is/are rejected.
- 7) ☒ Claim(s) 18, 20, 21 and 32 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Objections

1. Claim 18 is objected to because of the following informalities: In line 5, in the definition of "Cp" and "Flu," please replace "comprises" with "is" since there is nothing in the record to suggest that Cp and Flu represent any cycloaromatic embodiment other than cyclopentadienyl and fluorenyl. Appropriate correction is required.
2. Claim 18 is objected to because of the following informalities: The claim should indicate that bridge R" is bound to both Cp and Flu. Appropriate correction is required.
3. Claim 20 is objected to because of the following informalities: The embodiment in which R* is hydrogen in substituent ZR*₃ (*i.e.*, a methyl group) would appear inconsistent with use of the term "bulky group." Appropriate correction is required.
4. Claim 21 is objected to because of the following informalities: The claim requires a verb, and the claim should recite that YR#₃ is actually present on the Cp ring. Appropriate correction is required.
5. Claim 32 is objected to because of the following informalities: Please check claim dependency. It appears that the claim should depend from claim 31. Appropriate correction is required.

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Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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9. Claims 18-23, 25-30, 31, 32, and 35-37 are rejected under 35 U.S.C. 102(a) as being anticipated by Kawai *et al.* (WO 02/74855; equivalent U.S. 7,081,493 relied upon for translation).

Kawai *et al.* teaches preparation of a random propylene-ethylene segment of a block copolymer in the presence of a catalyst comprising $\text{Me}_2\text{C}(3\text{-}i\text{-Bu-5-MeCp})(3,6\text{-di-}i\text{-BuFlu})\text{ZrCl}_2$ (col. 37, example B1).

10. Claims 24, 33, and 34 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kawai *et al.*

The melting point of the random propylene-ethylene polymer is not disclosed, however, in view of the fact that it is prepared in the presence of the same catalyst recited in the instant claims, a reasonable basis exists to believe that the polymer exhibits the claimed feature. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

Kawai *et al.* also discloses various ligand architecture for preparing metallocene catalysts. Specific examples of fluorenyl compounds contain the octamethyloctahydrodibenzo-fluorenyl and the octamethylhexahydrocyclopentylfluorenyl ligands (col. 16, entries c6 and c7). While there are no working examples that show catalysts of this type, it would have been obvious to one having ordinary skill in the art to use such a catalyst for preparing polymers of the invention because use of such catalysts lie within the scope of the teachings of Kawai *et al.*, and therefore, one having ordinary skill in the art would have expected such a process to work with a reasonable expectation of success.

11. Claims 18-23, 25-30, 31, 32, and 35-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Gauthier *et al.* (U.S. 6,855,783).

Gauthier *et al.* teaches preparation of an isotactic ethylene-propylene copolymer in the presence of supported catalyst containing a metallocene of formula $\text{B}(\text{CpRaRb})(\text{FIR}'_2)\text{MQ}_2$

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(claims 29 and 31). The metallocene of choice is $\text{Me}_2\text{C}(3\text{-}t\text{-Bu-5-MeCp})(3,6\text{-di-}t\text{-BuFlu})\text{ZrCl}_2$ (examples, col. 16, line 11). While the patent does not use the term “random copolymer” *per se*, the claimed process recites introduction of a mixture of ethylene and propylene in a reaction zone for polymerization, which would characterize a process for making random copolymer.

12. Claims 33 and 34 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gauthier *et al.*

The melting point of the ethylene-propylene polymer is not disclosed, however, in view of the fact that it is prepared in the presence of the same catalyst recited in the instant claims, a reasonable basis exists to believe that the polymer exhibits the claimed feature. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Fitzgerald*, 619 F.2d. 67, 205 USPQ 594 (CCPA 1980). See MPEP § 2112-2112.02. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977).

13. Claims 18-22, 23, 25, 28-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita *et al.* (U.S. 5,331,054).

Fujita *et al.* discloses a process for preparation of propylene random copolymer having not more than 10 mole % of units derived from ethylene and/or C_{4-20} α -olefin in the presence of metallocene catalysts (claim 1, col. 3, lines 48-53). Useful catalysts contain metallocenes (25) to (32), listed in column 9. Although the working examples do not show preparation of propylene random copolymer in the presence of catalysts containing these metallocenes, one having ordinary skill in the art would have found it obvious to carry out such a process because such an embodiment lies within the scope of the disclosure of Fujita *et al.* Such a notion is especially obvious in light of the fact that the working examples shows use of catalysts containing unsubstituted $\text{Me}_2\text{C}(\text{Cp}(\text{Flu})\text{ZrCl}_2$, and the person of ordinary skill in the art would have found it obvious to use metallocenes (25) to (32) in order to make polymer of desired tacticity. The use of a metallocene of designated structure is a result-effective variable (MPEP 2144.5) since the structure used clearly affects polymer tacticity. Hence, the choice of a particular metallocene already set forth in Fujita *et al.* is a matter of routine experimentation and would have been well within the skill level of, and thus obvious to, one of ordinary skill in the art. The melting point

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of the ethylene-propylene polymer is not disclosed, however, in view of the fact that it is prepared in the presence of the same catalyst recited in the instant claims, a reasonable basis exists to believe that the polymer exhibits the claimed feature. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

14. Claims 18-20, 23, 25, and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Okumura *et al.* (U.S. 2003/0017939).

Okumura *et al.* discloses an olefin polymerization catalyst containing the compound $\text{Ph}_2\text{C}(3\text{-}t\text{-BuCp})(2,7\text{-di-}t\text{-BuFlu})\text{TiCl}_2$ (example). Other metallocenes include $\text{Me}_2\text{C}(3\text{-}t\text{-BuCp})(2,7\text{-di-}t\text{-BuFlu})\text{TiCl}_2$, $\text{Ph}_2\text{C}(3\text{-MeCp})(2,7\text{-di-}t\text{-BuFlu})\text{TiCl}_2$, and $\text{Me}_2\text{C}(3\text{-MeCp})(2,7\text{-di-}t\text{-BuFlu})\text{TiCl}_2$ (paragraph [0089]). Catalysts are used for polymerizing one or more alpha olefins such as ethylene, propylene, 1-butene, and 1-hexene (paragraph [0016] and [0017], claim 7).

15. Claims 31-34 are rejected under 35 U.S.C. 103(a) as unpatentable over Okumura *et al.*

While Okumura *et al.* does not teach which type of copolymer may be prepared from the list of alpha olefin in paragraph [0017], one having ordinary skill in the art would have found it obvious to prepare ethylene-propylene copolymer since the genus of alpha olefins is sufficiently small such that the species of ethylene-propylene copolymer is obvious to one of ordinary skill in the art. *In re Schaumann*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978). The melting point of the ethylene-propylene polymer is not disclosed, however, in view of the fact that it is prepared in the presence of the same catalyst recited in the instant claims, a reasonable basis exists to believe that the polymer exhibits the claimed feature. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

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16. Claims 18-20 and 23-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miller *et al.* (U.S. 6,469,188).

Miller *et al.* teaches a catalyst system comprised of a bridged metallocene containing an octamethyloctahydrodibenzofluorenyl ligand and a cyclopentadienyl ligand minimally substituted at the 3-position with substituent $E^1R^1R^2R^3$ (see claims, in particular, claims 9 and 17). Although the reference shows working examples in which catalysts are used for preparing polypropylene homopolymer, it would have been obvious to one having ordinary skill in the art to carry out copolymerization of two olefins because the inventors teach that catalysts are also used for polymerization of combinations of olefin for making copolymer and even terpolymer (col. 4, lines 15-33, col. 7, lines 31-33, col. 8, lines 20-23, col. 9, lines 11-13), and that such processes are within the level of ordinary skill in the art (col. 4, lines 36-40).

While Miller *et al.* does not disclose which type of copolymer may be prepared from the list of alpha olefin in col. 4, lines 26-30, one having ordinary skill in the art would have found it obvious to prepare ethylene-propylene copolymer since the genus of alpha olefins is sufficiently small such that the species of ethylene-propylene copolymer is obvious to one of ordinary skill in the art. *In re Schaumann*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978). The melting point of the ethylene-propylene polymer is not disclosed, however, in view of the fact that it is prepared in the presence of the same catalyst recited in the instant claims, a reasonable basis exists to believe that the polymer exhibits the claimed feature. Since the PTO can not conduct experiments, the burden of proof is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

17. Claims 18, 19, 23, 25, and 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Imuta *et al.* (U.S. 6,004,897).

Example 13 of Imuta *et al.* discloses preparation of C_2/C_8 copolymer in the presence of a catalyst comprising $Me_2Si(2-MeInd)(Flu)ZrCl_2$. Example 24 shows preparation of C_2/C_6 copolymer in the presence of a catalyst comprising $Me_2Si(2,6-M2BenzInd)(2,6-di-t-$

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BuFlu)ZrCl₂. In both metallocenes, the non-fluorenyl ring system comprises a cyclopentadienyl which is substituted at the 2-, 4-, and 5-positions.

Double Patenting

18. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

19. Claims 18-23 and 25-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16, 18-23, 29, and 30 of copending Application No. 10/562,621. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are drawn to processes of polymerization of at least two alpha olefins in the presence of metallocene catalyst, and both inventions utilize metallocenes with substantially the same claimed structural features.

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20. Claims 18, 23, 25, and 28-30 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 17-19, 25, 29, and 30 of copending Application No. 11/665,716. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are drawn to processes for polymerization of at least two alpha olefins in the presence of metallocene catalyst, and both utilize metallocenes with substantially the same claimed structural features.

21. Claims 18-23 and 25-37 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 6-11, 16, and 17 of copending Application No. 11/459,801. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are drawn to processes for polymerization of at least two alpha olefins in the presence of metallocene catalyst, and both utilize metallocenes with substantially the same claimed structural features. Note that both inventions claim preparation of ethylene-propylene random copolymer. One salient difference between claims drawn to the specific copolymer is the recited property. While each invention recites a different property, in light of the fact that both claimed processes utilize substantially the same catalyst, one having ordinary skill in the art would reasonably expect that polymers of both inventions exhibit substantially the same properties.

22. Claims 18-23, 25-32, and 35-37 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 11/922,159. Although the conflicting claims are not identical, they are not patentably distinct from each other because both inventions are drawn to processes for polymerization of at least two alpha olefins in the presence of metallocene catalyst, and both utilize metallocenes with substantially the same claimed structural features.

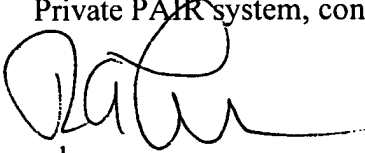
These are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (571)272-1104. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu S. Jagannathan, can be reached at (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <<http://pair-direct.uspto.gov>>. Should you have questions on the access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).



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January 8, 2008